

# Region-wide MUN Evaluation Process Basin Plan Amendment

## Evaluation of Project Alternatives – **DRAFT**

**Project alternatives are evaluated based on their ability to meet the following selection criteria:**

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. Sources of Drinking Water Policy, Anti-degradation Policy)
2. Provide the appropriate protection of MUN in Ag dominated surface water bodies with consideration given to the current and potential future use of drinking water.
3. Assure compliance with all relevant water quality objectives downstream.
4. Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose
5. Provide a solution for dischargers faced with implementing treatment measures to meet MUN use-based water quality criteria/objectives when no such use exists in their Ag dominated surface water bodies.
6. Make efficient use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards.

*(Note - Project options are also evaluated using the same criteria as above, if applicable)*

Table 1 –**DRAFT** Project Alternatives

Project Alternatives	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
1. No Action	This alternative does not amend the Basin Plan to include a framework for the Sacramento River, San Joaquin River and Tulare Lake Basins to evaluate the MUN beneficial use in agriculturally dominated surface water bodies; rather it continues to maintain the current MUN beneficial use designation in all water bodies that are not specifically listed in the Basin Plans as having no MUN beneficial use and a full Basin Plan Amendment is needed to utilize the Sources of Drinking Water exceptions.	Low	Low	High	Low	Low	Med	<ul style="list-style-type: none"><li>– Maintaining the MUN beneficial use in certain categories of water bodies does not reflect the intent of the Sources of Drinking Water Policy exceptions</li><li>– Potentially costly measures to Ag dischargers in the future to ensure that current MUN water quality objectives and CTR criteria are met</li><li>– Maintaining the MUN beneficial use in certain categories of water bodies is not consistent with the Department of Drinking Water's policies regarding impaired drinking water sources</li></ul>
2. Region-wide Water Body Categorization Framework	This alternative amends the Basin Plans to add a standardized process to determine the appropriate application and levels of protection of the MUN beneficial use based on categories of Ag dominated surface water bodies across the Central Valley region. Utilizes the Sources of Drinking Water Policy exceptions where appropriate to de-designate the MUN beneficial use. Establishes a new Limited MUN beneficial use category for Ag dominated water bodies that do not meet the Sources of Drinking Water Policy exceptions but are not currently providing municipal or domestic supply	High	High	High	High	High	Med	<ul style="list-style-type: none"><li>– Utilizes the Sources of Drinking Water Policy exceptions and ensures downstream MUN beneficial uses are protected</li><li>– The MUN beneficial use application is more consistent with the Department of Drinking Water's policies regarding drinking water sources</li><li>– A standardized process makes the MUN evaluation in Ag dominated surface water bodies more efficient and streamlined for Central Valley Water Board staff to implement</li><li>– Considers operational/maintenance activities needed to utilize constructed facilities for their intended purpose</li><li>– Implementation measures may require ongoing staff time to evaluate water body categorization reports and utilize the process for future evaluations</li></ul>
3. Basin-by-Basin Water Body Categorization Framework	This alternative mirrors that of Alternative 2, but with the Sacramento River, San Joaquin River and Tulare Lake Basins each having their own separate process for evaluating the appropriate MUN beneficial use in Ag dominated surface water bodies. This option takes into account the different hydrology and management practices between the three basins.	High	High	High	High	High	Low	<p>Same comments as in #2 apply, except:</p> <ul style="list-style-type: none"><li>– Different requirements for each basin make the overall framework more complex and less efficient</li><li>– Stakeholder work in the 1990s and currently indicate that a single categorization process will work for all three basins</li></ul>
4. Site Specific Objectives	This alternative uses the development of Site Specific Objectives (SSOs) to replace or serve as alternatives to using existing Basin Plan water quality objectives and CTR criteria to protect the MUN beneficial use.	Med	Med	Med	Med	Low	Low	<ul style="list-style-type: none"><li>– Does not utilize the Sources of Drinking Water Policy exceptions</li><li>– Expensive and time consuming to conduct the scientific reviews and justification necessary to use different water quality objectives in place of current Basin Plan objectives and CTR criteria</li><li>– Developing SSOs is still an available option – a region wide process does not take this away</li></ul>

**Table 2 –DRAFT Water Body Categorization Flow Chart 1 Options for a Water Body Categorization Framework**

WB Cat. Flow Chart Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
Original 1992 ISWP Flow Chart	This flow chart was developed and adopted in 1992 by the Central Valley Water Board to categorize different Ag dominated water bodies as part of the Inland Surface Water Plan. Categories included natural supply and drainage water bodies, constructed supply and drainage water bodies, and modified water bodies	<span style="color: red;">Low</span>	-	-	-	-	<span style="color: blue;">High</span>	<ul style="list-style-type: none"> <li>- Flow chart has already been adopted by the Central Valley Water Board and over 6000 water bodies throughout the Central Valley have been named and categorized – no starting from scratch with a new flow chart</li> <li>- The flow chart is over 20 years old and may not be sufficient to meet present day conditions and policies</li> <li>- Does not distinguish between modified water bodies that carry drainage or supply water (this is an important distinction that is needed to apply the Resolution 88-63 Exception 2b) and does not included a category for recirculating systems</li> <li>- Categorizes supply channels as water bodies with supply and/or drainage water. Resolution 88-63 Exception 2b focuses on water bodies that contain drainage water so additional work would be needed to parse out these differences</li> <li>- New/modified water bodies would still need to go through the categorization flow chart and be assigned</li> </ul>
2014 Updated ISWP Flow Chart 1	Developed via the 2012-2014 MUN evaluation stakeholder process, this flow chart used the original ISWP framework as a starting point. Modifications were made to distinguish different types of modified water bodies and recirculating systems. Other changes reflect the usage of GIS technology to help with the categorization process.	<span style="color: blue;">High</span>	-	-	-	-	<span style="color: purple;">Med</span>	<ul style="list-style-type: none"> <li>- Developed with stakeholder input, including the work done as part of the Ag Water Task Force in 1995, this flow chart better reflects today's conditions and policies regarding the MUN beneficial use and recycling water.</li> <li>- Working definitions were developed to help clarify the terminology used in the flow chart</li> <li>- Distinguishes between modified water bodies that contain drainage versus supply water only, and Includes recirculating systems as a separate water body category</li> <li>- Opens up the use of GIS tools and other records (e.g. National Hydrography Dataset) as a step in categorization process</li> <li>- Categorizes water bodies with drainage or a combination of drainage and supply together to better fit with Resolution 88-63 Exception 2b</li> <li>- Changes to the original flow chart will require that all water bodies go through the process even if they were categorized back in 1992 with the original ISWP flow chart (increase in time and cost)</li> </ul>
2014 Updated ISWP Flow Chart 1 plus an expansion to further delineate C2 constructed supply canals	This option includes the 2014 Updated ISWP Flow Chart 1 as a first step in identifying water body categories, but includes an additional flow chart for categorizing different types of constructed supply-only water bodies based on MUN use, operational spills and regulated monitoring.	<span style="color: purple;">Med</span>	-	-	<span style="color: blue;">High</span>	-	<span style="color: red;">Low</span>	<ul style="list-style-type: none"> <li>- Provides more specificity as to the type and uses of a constructed supply channel (with water being so scarce, these water bodies could potentially supply MUN and must be carefully considered)</li> <li>- Supply water bodies may serve as multi-use facilities so consideration is given to the intended use(s).</li> <li>- Includes supply water bodies with a current MUN use – this is out of scope of the project.</li> <li>- Attempts to set the MUN beneficial use and compliance through the flow chart process instead of through a reporting process using implementation provisions</li> <li>- Puts a limited MUN use on a certain types of supply only channels which may be difficult to justify – no examples provided</li> </ul>

Table 3 –**DRAFT** MUN Beneficial Use Components (to be applied to different options in Table 4)

Beneficial Use Components	Brief Description
No change to MUN designation	No change to the current MUN beneficial use application.
De-designate MUN	Using a flow chart water body categorization framework, specified categories will have a default MUN de-designation. Verification that the water body meets relevant regulatory requirements (e.g. Resolution 88-63 exception 2B) for de-designation will be made using a water body categorization report.
Apply a LIMITED MUN	Using a flow chart water body categorization framework, specified categories will have a default MUN designation as “Limited MUN”. Verification that the water body meets relevant regulatory requirements for a reduction in beneficial use protection will be made using a water body categorization report.

Table 4 –**DRAFT** MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	Brief Description <i>(note- Water Body Categorization Reports would be required to validate default designations)</i>	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
No Change to current MUN designation	All categories default to the MUN beneficial use.	Low	Low	High	Low	Low	Med	<ul style="list-style-type: none"><li>– Does not reflect the intent of the Sources of Drinking Water Policy exceptions</li><li>– Maintaining the MUN beneficial use in certain categories of water bodies is not consistent with the Department of Drinking Water’s policies regarding impaired drinking water sources</li></ul>
De-designate MUN only in C1/M1 water bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply ) – MUN C2 (Constructed Ag Supply) – MUN M2 (Modified Ag Supply) – MUN Ag Recirculating System - MUN	High	Med	High	Med	High	High	<ul style="list-style-type: none"><li>– Utilizes the Sources of Drinking Water Policy exceptions and ensures downstream MUN beneficial uses are protected</li><li>– The MUN beneficial use application is more consistent with the Department of Drinking Water’s policies regarding drinking water sources</li><li>– Less complexity than other options – does not include a new beneficial use (LIMITED MUN) category</li></ul>
De-designate MUN in C1/M1 AND approved Recirculating systems	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with approved Operational Plan) <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply ) – MUN C2 (Constructed Ag Supply) – MUN M2 (Modified Ag Supply) – MUN	High	Med	High	Med	High	Med	<ul style="list-style-type: none"><li>– Allows recirculating systems to be utilized for their intended design and purpose</li><li>– Adds an additional reporting requirement to the existing water body categorization reports</li></ul>
De-designate MUN in C1/M1 AND approved Recirculating systems.	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN	High	High	High	High	High	Med	<ul style="list-style-type: none"><li>– Establishes a new Limited MUN beneficial use category for Ag dominated water bodies that do not meet the Sources of Drinking Water exceptions but are not currently providing MUN, providing more flexibility to allow</li></ul>

Table 4 –**DRAFT** MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	Brief Description <i>(note- Water Body Categorization Reports would be required to validate default designations)</i>	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
Apply LIMITED MUN to C2/M2 Supply Water Bodies	Ag Recirculating System – No MUN (with Regional Board approved Operational Plan)  C2 (Constructed Ag Supply) – LIMITED MUN  M2 (Modified Ag Supply) – LIMITED MUN  <u>No changes to the following:</u>  B1 (natural Ag Drain/Combo) – MUN  B2 (natural Ag Supply ) – MUN							constructed/modified channels to be utilized for their intended design and purpose.
De-designate MUN in C1/M1 AND approved Recirculating systems.  Apply LIMITED MUN to all other Ag dominated water bodies	C1 (constructed Ag Drain/Combo) – No MUN  M1 (modified Ag Drain/Combo) – No MUN  Ag Recirculating System – No MUN (with Regional Board approved Operational Plan)  C2 (Constructed Ag Supply) – LIMITED MUN  M2 (Modified Ag Supply) – LIMITED MUN  B1 (natural Ag Drain/Combo) – LIMITED MUN  B2 (natural Ag Supply ) – LIMITED MUN	Med	High	High	High	High	Med	- Expands the new Limited MUN beneficial use category to natural Ag dominated water bodies that are not providing the MUN use
De-designate MUN in C1/M1 AND approved Recirculating systems.  Apply special consideration to supply channels based on third flowchart option  Apply LIMITED MUN to all other Ag dominated water bodies	C1 (constructed Ag Drain/Combo) – No MUN  M1 (modified Ag Drain/Combo) – No MUN  Ag Recirculating System – No MUN (with Regional Board approved Operational Plan)  C2 (Constructed Ag Supply) – dependent on supplemental flowchart  M2 (Modified Ag Supply) – LIMITED MUN  B1 (natural Ag Drain/Combo) – LIMITED MUN  B2 (natural Ag Supply ) – LIMITED MUN	Low	Med	Med	High	High	Med	- Incorporates the MUN designations proposed in the C2 supplemental flowchart  - Supply-only canals do not meet the Sources of Drinking Water Policy exception 2b so removing MUN may be challenging

**Table 5 –DRAFT Water Quality Objective Options for a “LIMITED MUN” Category**

Water Quality Objective Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
Add new NARRATIVE water quality objective	<p>Only a narrative water quality objective is given in the Basin Plan for the LIMITED MUN beneficial use</p> <p>Proposed Options:</p> <p>1. <i>Accumulation of constituents in the water body can not preclude managed and/or treated use of the water for MUN use in the future or impact downstream beneficial uses.</i></p> <p><i>The lowest average annual concentration of a constituent since 1975 or a time period based on a previously approved regulatory action (e.g. reservoir construction) will be utilized to determine background concentration.</i></p>	Med	Med	Med	Med	Med	Med	<ul style="list-style-type: none"> <li>– Recycling has greatly increased since 1975, may be hard to achieve these concentration levels today.</li> <li>– Does not take into account drought conditions – drain water may be included in an otherwise supply-only water body</li> </ul>
	<p>2. <i>Accumulation of constituents in the water body must be found to provide maximum benefit to the people of the state and not unreasonably affect managed and/or treated use of the water for MUN use or impact downstream beneficial uses, and not exceed natural background water quality.</i></p> <p><i>Maintenance of a constructed water body for its intended purpose is considered a maximum benefit as long as the discharge does not impact downstream beneficial uses.</i></p> <p><i>Accumulation of a constituent occurs when the concentration is elevated above the water body's best quality since 1975, unless subsequent lowering of water quality was due to previously approved regulatory action (e.g. construction of a reservoir).</i></p>	Med	High	High	High	High	Med	<ul style="list-style-type: none"> <li>– Includes provision for maintenance</li> <li>– Need to define “natural background”</li> <li>– Maintenance section may be more applicable in policy/implementation sections</li> <li>– Accumulation section is more of a definition and may not be needed in narrative.</li> </ul>
	<p>3. <i>Discharge from these water bodies will not impair downstream Municipal or Domestic Supply (MUN) beneficial uses.</i></p>	Med	Low	High	High	Med	Med	<ul style="list-style-type: none"> <li>– Does not protect the water body itself</li> </ul>
	<p>4. <i>Agricultural irrigation water supply channels with a LIMITED MUN beneficial use designation have the potential to carry municipal or domestic water supply but these channels are multi-use facilities and are normally managed for agricultural water supply operations. While MUN is not an existing use and agricultural operations may conflict with that use, with changes in management these channels could be utilized in the future to provide a water supply that could be treated to a safe level for municipal and/or domestic use .Agricultural irrigation water supply channels with a LIMITED MUN beneficial use designation shall be managed in a manner that water quality does not exclude the fulfillment of the MUN beneficial use in the future.</i></p>	Med	Low	Low	High	High	Med	<ul style="list-style-type: none"> <li>– Proposed by San Joaquin Tributary Authority for supply channels</li> <li>– Does not consider other types of water bodies that may be considered for LIMITED MUN but are not supply only channels (e.g. Ag dominated natural water bodies)</li> <li>– Does not mention protection of downstream water bodies</li> </ul>



Table 5 –**DRAFT** Water Quality Objective Options for a “LIMITED MUN” Category

Water Quality Objective Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
Add new NUMERIC water quality objective	Only a numeric water quality objective is given in the Basin Plan for LIMITED MUN  Proposed Options:  1. <i>Must meet primary MCLs, but not secondary MCLs. (Narrative for nuisance objective will still apply)</i>	Med	Med	Med	Low	Low	Med	<ul style="list-style-type: none"><li>– Secondary MCLs are for taste, odor and appearance, and do not reflect a human health criteria</li><li>– Water purveyors still must report exceedances to secondary MCLs in source water to the public</li></ul>
	2. <i>Must meet primary and secondary MCLs with the exception of: trihalomethanes (short half-life) and ...????</i>	Med	Med	Med	Low	Low	Med	<ul style="list-style-type: none"><li>– Trihalomethanes have a short half-life and are a low human health threat in waters that are not currently being used for the MUN use.</li><li>– MCLs are tap water standards and these objectives are restrictive for agricultural practices</li><li>– Removing trihalomethanes or other constituents from the water quality objectives may require more thorough scientific justification</li></ul>
	3. <i>Must meet primary and secondary MCLs, but dissolved fractions can be used in place of total fractions</i>	Med	Med	Med	Low	Low	Med	<ul style="list-style-type: none"><li>– Using dissolved fractions reflects the use of filtration in conventional water treatment</li><li>– Water purveyors use total fractions for reporting secondary MCL values</li></ul>
Add both NARRATIVE and NUMERIC water quality objective	Any combination of the two previous categories	?	?	?	?	?	?	<ul style="list-style-type: none"><li>– Provides more clarity for setting permit limits</li></ul>



**Table 6 –DRAFT Implementation Options for a Water Body Categorization Framework**

Implementation Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
Apply on “As Needed” Basis	<p>Water Bodies go through the process only as needed/desired. Existing MUN designation remains on unlisted (in the Basin Plans) Ag dominated surface water bodies.</p> <p>A Reference Document is used to list water bodies and their MUN designation on an interim basis. The Reference Document can be utilized to set interim permit limits for a finite period.</p> <p>The Triennial Review process or other Board/Public approval process is used to adopt water bodies into Basin Plan on a periodic basis.</p>	Med	Med	-	-	High	Med	<ul style="list-style-type: none"> <li>– Provides flexibility to water agencies or other stakeholders to decide whether or not they want to evaluate the MUN beneficial use designation in their area</li> <li>– Reference Document provides a way to set interim permit limits without waiting for a Basin Plan Amendment to be done</li> <li>– Less of an immediate time and resource commitment</li> <li>– As an ongoing implementation process, evaluations can be made when hydrologic or management changes are made to a water body</li> <li>– MUN beneficial use will continue to be applied in water bodies where it may not be an appropriate designation</li> <li>– Will require an ongoing resource and time commitment by staff to evaluate reports and update the Reference Document and the Basin Plans</li> </ul>
Establish a Time Schedule to categorize and evaluate MUN beneficial use designation in ALL Ag dominated water bodies	<p>A Time Schedule is created to have all Ag dominated water bodies categorized and accordingly designated/de-designated for the MUN beneficial use.</p> <p>Water bodies are adopted into the Basin Plans (with their appropriate MUN beneficial use designation) according to the requirements set forth in the Time Schedule.</p>	Med	Med	-	-	Low	Med	<ul style="list-style-type: none"> <li>– Sets a clear timeline to evaluate all Ag dominated water bodies in the Central Valley</li> <li>– A greater immediate need to commit staff resources and time to the evaluations</li> <li>– Once the evaluations are complete and the MUN designations are adopted into the Basin Plans, there is less of an ongoing commitment of staff resources</li> <li>– Less flexibility to water agencies and other stakeholders – they will need to comply by a certain time frame</li> <li>– Does not provide a way to set interim permit limits or evaluate future changes to water bodies</li> </ul>

**Table 7 –DRAFT Monitoring/Surveillance Options for a Water Body Categorization Framework**

Monitoring/ Surveillance Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1	2	3	4	5	6	
No Action, use existing regulatory programs	This monitoring and surveillance option assumes that existing Water Board programs such as the Irrigated Lands Regulatory Program (ILRP), National Pollutant Discharge Elimination System (NPDES) and Surface Water Ambient Monitoring Program (SWAMP) as well as monitoring conducted by outside agencies such as the California Department of Water Resources, United States Geological Survey, and water purveyors are sufficient to assure that discharges from the dedesignated/Limited MUN systems meet relevant water quality objectives as required by the Regional Boards.	High	-	Med	-	Med	High	<ul style="list-style-type: none"> <li>- No new programs need to be implemented in the Basin Plan -uses existing resources and infrastructure which saves money and time</li> <li>- Existing programs share the same objective of making sure discharges do not impair surface waters and impact beneficial uses</li> <li>- Individual water agencies have already moved to regional monitoring networks (e.g. ILRP)</li> <li>- Existing monitoring may not adequately evaluate the MUN constituents of concern in a timely manner – additional monitoring may be needed</li> </ul>
Selected Monitoring to Fill Data Gaps	This option requires additional monitoring requirements if current monitoring efforts are not sufficient to assure compliance with relevant water quality objectives as required by the Central Valley Water Board. With this option, consideration is given to adding requirements to existing internal programs and/or utilizing other agency programs to fill in the data gaps by leveraging resources and avoiding duplication to satisfy the monitoring and surveillance requirements.	High	-	Med	-	High	Med	<ul style="list-style-type: none"> <li>- More complex – may require additional resources and coordination to make sure monitoring is adequate across programs and agencies.</li> <li>- Concerns regarding costs and oversight</li> </ul>
Develop new regional monitoring program focused on impacts from affected water body discharges	This alternative sets up a new regional monitoring program to specifically address the MUN evaluation monitoring requirements set forth in the Basin Plan Amendment.	Med	-	High	-	Med	Low	<ul style="list-style-type: none"> <li>- Has the specific objective of protecting the MUN beneficial use</li> <li>- Will need to build a new program which could potentially take an immense amount of money, time and resources</li> <li>- Duplicative objective with existing programs like the Irrigated Lands Regulatory Program, which already has a purpose of preventing agricultural runoff from impairing surface waters</li> </ul>